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REMARKS

Disposition of Claims:

Upon entry of this Amendment, claims 1-18 and 20-32 (as amended) will remain pending in the application and stand ready for further action on the merits. The amendments to the claims are fully supported by the specification particularly at page 1, lines 28-32; page 4, lines 13-17; page 8, lines 19-21; and page 12, lines 8-10. No new matter has been added to the specification.

Claims 18 and 20-32 have been allowed. (Claim 30 has been amended to correct certain informalities, particularly claim 30 has been amended to provide antecedent basis for the term, "device die" and to include the term, "and.")

Claims 1-4, 9, 13, and 16-17 have been rejected, and these rejections are addressed below.

Claims 5-8, 10-12, and 14-15 have been objected to, and these objections are addressed below.

Claim Rejections Under 35 U.S.C. §103(a)

The Office Action states that claims 1-4, 9, 13, and 16-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kuczynski, U.S. Patent 6,356,686 ("Kuczynski") in view of Kragl et al., U.S. Patent 5,574,806 ("Kragl"). It is submitted that the present invention, as recited in amended claims 1-4, 9, 13, and 16-17, is not prima facie obvious over the combination of Kuczynski and Kragl for the reasons discussed below.

Regarding Kuczynski, this reference discloses an optical subassembly that includes a transmitter. Referring to FIGS. 3 and 4 in Kuczynski, Applicants agree with the Examiner that the transmitter (120) includes a die carrier (210) having a recess (220) for receiving a VCSEL die (230). The VCSEL die (230) contains alignment holes (240) and multiple VCSELs (235) are arranged on the die (230). The transmitter also includes an optical coupler (300) for receiving light signals generated by the VCSELs (235). The optical coupler (300) contains coupler pins (310) which are inserted into alignment holes (240) to roughly align the optical fibers (190) with the VCSELs (235). The optical coupler (300) is secured to carrier (210) with an adhesive once alignment has been verified and completed.

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Kuczynski further discloses that an encapsulant (400) is preferably dispensed into the gap between the die (230) and optical coupler (300), and the encapsulant can be cured. The encapsulant forms a hermetic seal over die (230) and fills the gap between die (230) and optical coupler (300) such that it bridges VCSELs (235) to optical fibers (190).

However, as the Examiner points out, Kuczynski does not disclose the step of actively shaping the fluid encapsulant material. There is no teaching in Kuczynski for referencing a molding tool to the device die and/or optoelectronic device, and removing the molding tool from the cured encapsulant as recited in amended claim 1.

Turning next to Kragl, the Applicants agree with the Examiner that this reference discloses a method for producing an integrated optical circuit that uses a molding tool having holding devices for an optoelectronic device, a mold for a waveguide trench, and a mold for an optical waveguide holding device. The optoelectronic device is inserted into the holding devices of the molding tool. Then, the molding tool and the inserted device are encapsulated by a moldable material. The molding tool is removed to produce a basic unit with the optoelectronic device embedded in a molded material as shown in FIGS. 2A-2C.

The Examiner takes the position that it would have been obvious to one of ordinary skill in the art to combine the step of actively shaping the encapsulant over the optoelectronic device, as disclosed in Kragl, with the method disclosed in Kuczynski in order to produce Applicants' invention.

However, it is submitted that Kuczynski does not provide any basis for modifying the disclosure therein to produce the presently claimed invention. Kuczynski is not even interested in a molding process; rather, Kuczynski merely teaches filling the gap between the substrate and optical coupler with an encapsulant. There is no suggestion or even a hint for shaping the encapsulant by referencing a molding tool to the die and/or optoelectronic device. It is clear that neither the carrier nor optical coupler in Kuczynski can be considered a removable molding tool for shaping the encapsulant, since the entire purpose of Kuczynski is to fix these components together.

Thus, a person of ordinary skill in the art would have to ignore the basic teachings in Kuczynski and substitute the molding method disclosed in Kragl in place of the gap-filling

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method disclosed in Kuczynski. It is submitted that such a combination is not a proper basis for making a prima facie case of obviousness.

In addition, it is submitted that even if the disclosures in Kuczynski and Kragl were combined, the present invention still would not be obvious. As discussed above, the Kragl molding tool has molds for a waveguide trench and an optical waveguide holding device. According to Kragl, the molding tool is encapsulated by a moldable material.

Thereafter, the molding tool 3 and the inserted electrooptic semiconductor component 2 with the carrier plate 1 are encapsulated by a moldable material. The material used is preferably a polymer. (Col. 5, lines 8-11).

As a result, the waveguide trench and holding device are "inserted into the polymer plastic by molding of the molding tool." (Col. 5, lines 30-31). Thus, in Kragl, the molding tool contains molds for certain elements, and the molding tool is encapsulated with a moldable material.

In contrast, claim 1 (as amended) recites a method, where the encapsulant is introduced over the optoelectronic device. The encapsulant then is shaped by referencing a molding tool to the device die and/or optoelectronic device. In Applicants' method, the encapsulant is not introduced into mold cavities located in the molding tool as taught by Kragl. Thus, even if a person of ordinary skill in the art combined the teachings of Kuczynski and Kragl, the present invention still would not be obvious.

In view of the foregoing, it is respectfully requested that the rejection of claims 1-4, 9, 13, and 16-17 under 35 U.S.C. §103(a) be withdrawn.

Objections to Claims 5-8, 10-12, and 14-15

The Office Action states that claims 5-8, 10-12, and 14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

Applicant believes that amended claim 1 is now in condition for allowance for the reasons discussed above. Claims 5-8, 10-12, and 14-15 either depend directly or indirectly on

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amended claim 1. Thus, it is respectfully submitted that these claims are in condition for allowance as written.

Allowance of Claims 18 and 20-32

Applicants acknowledge that claims 18 and 20-32 have been allowed.

Conclusion

In summary, Applicants submit that all of the claims presented for consideration herein are patentable and each of the Examiner's rejections and objections has been overcome. Accordingly, Applicants respectfully request favorable consideration and allowance of claims 1-18 and 20-32.

The Commissioner is hereby authorized to charge any additional fee required in connection with the filing of this paper or credit any overpayment to Deposit Account 02-0900. Should there be any outstanding matter that needs to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

Respectfully submitted,
BARLOW, JOSEPHS & HOLMES, LTD.

By: Daniel W. Sullivan

Daniel W. Sullivan
Registration No. 34,937
101 Dyer Street, 5th Floor
Providence, RI 02903
Tel: 401-273-4446
Fax: 401-273-4447
dws@barjos.com

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